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ABSTRACT

What is the relationship between salaries and the functioning of the academic marketplace? Are the salaries of faculty members determined to a substantial degree by market valuation of their skills. The skills market, however, may differ across disciplines and sexes, and therefore the reward for a given skill may differ correspondingly. Findings indicate that (1) faculty salaries do differ by discipline and sex; (2) women earn less than men with like characteristics; (3) teaching and public service yields low compensation; (4) publishing and administration carry much larger returns. (Author/KE)

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FACULTY SKILLS AND THE REWARD STRUCTURE IN ACADEME

by
Howard P. Tuckman, James H. Gapinski, and Robert P. Hagemann*

> "In some universities the salary makes but a part, and frequently but a small part of the emoluments of the teacher, of which the greater part arises from the honoraries or fees of his pupils. The necessity of application, though always more or less diminished, is not in this case entirely taken away. Reputation in his profession is still of some importance to him, and he still has some dependency upon the affection, gratitude, and favourable report of those who have attended upon his instruction; and these favourable sentiments he is likely to gain in no way so well as by deserving them, that is, by the abilities and diligence with which he discharges every part of his duty."
>
> Adam Smith, The Wealth of Nations, 1776

Academicians have been accused of being preoccupied with the abstract and of devoting much time and energy to the solution of problems which have little practical significance. This stereotype is true in part, but only in part. Counterexamples are many. And almost as if in derisive rebuttal to the indictment, a number of academicians recently addressed a very pragmatic question which strikes literally close to their home. Stripped of its ornamentation, it reads, "What determines my salary?" The researchers, following their own theoretical, methodological, and professional instincts, have produced several different testable forms, and they have examined various subissues, among them salary differentials by sex. Not surprisingly, women faculty are shown to earn less than their male colleagues ceteris paribus.

This paper brings to the inquiry a new, comprehensive data set, and it elaborates an hypothesized relationship between salaries and the functioning of the academic marketplace. Specifically, it postulates that the salaries of faculty

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members are determined to a substantial degree by market valuation of their skills. The skill markets, however, may differ across disciplines and sexes, and therefore the reward for a given skill may differ correspondingly. The data base of the study is stratified according to these two characteristics, and regression analysis is applied separately to each stratum. This posture frees the equation specification from the restrictive assumption found in the literature that the salary effects of discipline and sex can be captured entirely by intercept dummies; instead, it permits a test of that assumption.

Section I amplifies the skills hypothesis, and Section II describes the data and the model. Section III reports the empirical results for male faculty while Section IV compares the results for males and females. Concluding comments appear in Section V.

I. The Market for Faculty Skills

Many academic departments desire faculty skilled in teaching, research, public service, and administration. Individuals with these skills can potentially provide benefits to their department ranging from increased student enrollments, to outside grant funding, to recognition by the university, local community, and discipline at large. Two points are evident. First, faculty members usually do not possess these skills in equal measure.[1] Effective administrators are not necessarily the most able researchers, and those skilled in public service may be weak teachers. Since skills take time to develop, faculty to some extent choose among competing alternatives, and the return from each skill should affect their decisions. Moreover, the diverse returns may have influenced the choice of skills

[1] Alternatively, it might be argued that faculty possess these skills in equal measure but fail to cultivate them equally. For a polemic explanation of why this occurs, see van den Berghe (1970, c.6).

developed in graduate school. Second, departments face an allocation problem. Given limited resources, they can hire only a few faculty and priorities must be observed. Whom a department selects depends on the importance it gives to the package of skills offered by each potential faculty member and on the premium those skills command in the market.[2] Tenure regulations, which limit a department's alternatives, prohibit rapid adaptation to changing departmental needs.

The stock of each type of faculty skill available in the marketplace is relatively fixed in the short run. If the demand for a given skill increases, the price paid to faculty for this skill will increase thereby creating salary differentials among faculty. In the long run, the number of faculty possessing the desired skill will increase and thus narrow the differential among skills.[3]

What is the market reward for outstanding teaching? The evidence is mixed. In the absence of a comprehensive theory of learning, departments may not effectively appraise the teaching output of their faculty. Nevertheless, the department head or other decision maker can probably identify outstanding and poor teachers through contact with faculty members and evaluations by students.

If a department wants to offer internal rewards to good teachers, it can discriminate among faculty on the basis of their teaching abilities. A problem arises when outstanding teachers attempt to sell their skills to other institutions or when new Ph.D.'s enter the job market. Good teachers are normally known locally; it is difficult to gain a national reputation for one's teaching skills

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[2]The premiums for new faculty are lower than those to established faculty since the latter are more likely to have invested time in a speciality. Once a person has opted to cultivate a particular skill, it is difficult for him to change direction since time is necessary to make a shift. This introduces short-run rigidities into the marketplace.

[3]Salary need not be the only factor causing faculty to augment their background in the demanded skills. Greater job options, increased prestige, and more opportunities for creative work also play a role. Nothing reported in this paper is intended to minimize the importance of nonpecuniary returns.

as Brown (1965, pp. 203-06) reports. Consequently, the demand for those with outstanding teaching skills may be limited and the price paid for these skills low.

The demand for faculty with research skills is likely to differ from that for teachers. The output of researchers is more visible, consisting of articles, books, and other published pieces which usually attract a national audience. The quality of a researcher's work can be more readily judged by experts, and its worth can be valued in terms of the grants it brings and its effects on the national reputation of the researcher.[4] When one adds the prospect that researchers may be more versatile with quantitative and analytic techniques than are teachers, both supply and demand forces would seem to place a relative premium on research skills. This premium should be at least partially reflected in the salary increments received from the publication of articles and books.

Public service entails meeting with communities and public organizations, working on departmental or university committees, and performing charitable or educational activities. Some departments regard these activities highly and demand faculty successful in building contacts and pyramiding their outside involvements. However, as in the case of teaching, such activities are more inclined to receive local rather than national recognition. The market for faculty with these skills may be circumscribed given the difficulties inherent in determining a faculty member's public service abilities.

Administrative skills are largely learned on the job. While grant management, departmental and university duties, and prior work experiences

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[4]Not all research has practical value. Moreover, the significance of seminal work is often recognized by hindsight. Some types of research activities are of immediate value to a department, and these are most apt to be rewarded. Whether such reward policies impede in-depth scientific inquiry has not yet been analyzed.

provide faculty with some skills, much administrative experience is human capital specific. Furthermore, administrative skills are not easily measured, and thus the market for this type of skill may be limited. But because administrators have a supervisory role in the department, their salary is likely to be higher than that of other faculty.

Most faculty enter the job market possessing more than one skill, and the salary an individual is offered presumably includes a return for each skill valued by the employing department. Different disciplines may assign different weights to given skills, and hence the structure of salaries could vary by discipline. It might also vary by sex as males and females may be subject to dissimilar supply and demand phenomena.[5]

II. The Data Base and Model Specification

The data used in this research were gathered by the American Council on Education as part of a 1972-73 national cross-section study of faculty. ACE selected 301 institutions representing diverse institutional types, levels of selectivity, and amounts of institutional wealth. Included are 78 universities, 181 four-year colleges, and 42 junior or community colleges. The original mailing to these schools involved 108,722 individuals; two follow-up mailings, together with the original, produced 53,034 responses. A more complete description of the ACE data file is found in Bayer (1973, pp. 1-5).

Interest in returns to various academic skills dictates that of all respondents to the ACE questionnaire only full-time university faculty be considered. These are drawn from six grouped disciplines:

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[5]For a general presentation of this view, see Brown (1967, pp. 62-63,66); its application to economics specifically appears in Reagan (1975).

Social Sciences		Liberal Arts	Professions
Anthropology	Economics		Education
Geography	History	English	Law
Political Science	Psychology	Music	Medicine
Sociology			Pharmacy

Math-Engineering	Biological Sciences	Physical Sciences
Civil Engineering	Biochemistry	Chemistry
Electrical Engineering	Botany	Earth Science
Mathematics	Zoology	Physics

The revised data file, with incomplete responses deleted, consists of 16,420 faculty, of which 15,161 are male and 1,259 are female.[6]

To determine the returns to select skills, a model is postulated which has roots in those of Katz (1973) and Johnson and Stafford (1974). A list and brief discussion of the variables follow.

Salary: Income received by a faculty member from the employing institution for contractual services. Excluded are consulting fees, royalties, and other sources of income beyond the ken of the institution, the implicit assumption being that universities do not consider a person's outside sources of income in setting salary levels.

Articles and Books: Total published as of 1972-73. These variables are taken to reflect research skill. The number of articles is partitioned into 6 groups (1-2, 3-4, 5-10, 11-20, 21-50, >50), each represented by a dummy variable which assumes a unit value when articles published fall in the corresponding group and zero otherwise. Books are partitioned into 4 categories (1-2, 3-4, 5-10, and >10) with a dummy assigned to each. The same "1-0" criterion applies. This stratification of publications can be used to examine whether they exert a linear or nonlinear effect on faculty salaries. ACE did not compile continuous publication variables.

Teaching Award: A dummy variable with unity indicating that an individual has received a teaching award. While a measure of teaching

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[6]ACE developed a complex weighting scheme for making the faculty data representative of the entire population of college and university teaching faculty. These have not been used here since the weights are based on the teaching rather than the total faculty community. The breadth of our sample, however, suggests that in terms of representativeness it should be at least as appropriate as the NSF National Register.

quality ranging from poor to outstanding might be preferable to the award variable, such a measure is unavailable as some departments sampled do not rate faculty on teaching performance and others follow disparate rating schemes. It is probable, however, that our award variable identifies a high proportion of those with outstanding teaching skills.

Public Service: A dummy variable which equals unity if the faculty member is currently engaged in unpaid public service. Since organizational work typically involves long-term commitments, the current service variable should reflect past service as well.

Administration: This skill is introduced by two dummies. The first denotes (by 1) the individual who currently lists administration as the prime work activity; the second denotes (by 1) the faculty member who previously was a dean or department head.[7]

Experience: Number of years since the person received the highest degree. It enters as a quadratic in the Johnson-Stafford fashion to allow for diminishing marginal returns to experience. Since skill variables are explicitly included in the model, this variable may be interpreted as measuring the effect of experience on salary net of those increments which result from the cultivation of specific skills.

Ph.D.: A dummy variable with a unit value when a person has a Ph.D or its equivalent.

Start: Length of time taken to complete the degree. Defined as year of highest degree minus year of birth, this variable represents starting age at the point when the Ph.D is received. It enters interactively with the Ph.D. and experience variables to admit interdependencies of the Johnson-Stafford type.

Eleven-Month Salary and Quality of Department: Dummy variables designed to reflect the characteristics of the institution where a faculty member works. The first assumes unity if the contractual period of employment is 11 months. Quality enters through two dummies with unity assigned to the relevant variable if the department's rating falls in the 3.1-4.0 or 4.1-5.0 interval of the Roose-Anderson (1970) scale. The most favorable rating is 5.

Region of Department: Dummy variables for North, Great Lakes, and Southeast to allow for regional differences in labor markets. Unity is assigned to a dummy when a department is located in the

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[7] It must be recognized that the dummies for administration and public service strictly speaking represent activities rather than skills. It seems reasonable to assume, however, that faculty participating in these endeavors inherently possess a certain level of the requisite skills and enhance them in the line of duty. In short, the dummies serve as proxies for skills.

corresponding region. Southwest and West combine to form the region of reference.

Black Faculty: A dummy with a unit value when the faculty member is black.

This equation was fitted to the ACE data by ordinary least squares, and a complete analysis of covariance followed to determine if the salary structure could be regarded as identical across the twelve discipline-sex groups. The answer returned unequivocally negative; the null hypotheses of overall, intercept, and slope homogeneity were all soundly rejected at the 5% level. But perhaps the salary structure differed only by sex, not by discipline. That is, males might display one uniform structure across disciplines and females another. The three hypotheses for this scenario were tested at 5% and rejected. A third possibility of homogeneity across sexes for given disciplines remained. This cross-cut, however, posed a minor problem because it accentuated the small sample sizes for females in liberal arts, math-engineering, biological sciences, and physical sciences. The female regressions for these emaciated disciplines seemed unrepresentative, and consequently the four data groups were deleted from further consideration. For social sciences and professions, which boasted much larger female samples, the trio of homogeneity hypotheses was rejected at 5%. This evidence urged a separate investigation of salary for each discipline-sex group.

III. Empirical Analysis of the Salary Structure for Males

Table 1 presents the outcome of fitting the salary equation to data on male faculty in each discipline. The coefficient of any variable in a given set of dummies is interpreted relative to the category excluded from that set. For example, the coefficient of 3-4 articles shows the extra salary which a faculty having that number of articles earns relative to one who published no articles.[8] All

[8] A skill coefficient represents the "mean circumstance" of the faculty already in that category. It might not signify the return which a person just entering that category would receive.

Table 1

ESTIMATED SALARY EQUATION FOR MALE FACULTY BY DISCIPLINE

	Regression Coefficients					
	Soc Sci	Lib Art	Profess	Mat Eng	Bio Sci	Phy Sci
Articles						
1-2	$ 423§	$ 318	$1,091†	$1,040*	$ 260	$1,296
3-4	562†	780†	1,000†	1,383*	-175	1,489§
5-10	1,010*	1,224*	2,125*	1,558*	56	1,488†
11-20	1,758*	2,387*	3,152*	2,772*	1,032	1,837*
21-50	2,621*	3,435*	5,278*	4,352*	1,982	3,170*
>50	4,219*	5,851*	9,008*	6,205*	5,006*	6,016*
Books						
1-2	426*	122	-242	444†	-426	432†
3-4	1,424*	777†	-900†	1,073*	639	625†
5-10	2,515*	1,710*	-1,249*	1,407*	515	904†
>10	1,995*	2,215*	-1,697*	-441	699	1,067
Teaching Award	276§	280	76	217	615§	-246
Public Service	643*	410§	404	633*	175	675*
Administration						
Current	3,403*	2,988*	3,105*	2,605*	3,809*	3,610*
Previous	1,448*	2,337*	-81	1,964*	1,811*	1,943*
Experience	528*	279*	666*	588*	546*	547*
Experience Squared	- 8*	- 2§	-10*	- 8*	- 8*	- 9*
Ph.D.	1,925†	-1,938†	6,371*	2,761*	-527	1,852§
Start	43§	-83*	111*	81*	-13	33
Start x Experience	-.3	-.4	-1	-3*	- 3†	.4
Start x Ph.D.	-26	114*	-158*	-16	88	-23
Quality of Department						
3.1-4.0	1,098*	841*	-2,287	743*	2,185*	646*
4.1-5.0	1,297*	842	-3,724†	1,030*	2,016*	1,539*
Region of Department						
North	1,426*	700†	1,050*	1,652*	1,089*	872*
Great Lakes	844*	621†	406	787*	-177	657*
Southeast	1,187*	372	527	1,133*	341	837*
Eleven-Month Salary	2,784*	1,214*	3,638	3,537*	2,608*	3,520*
Black Faculty	858	120	1,390	171	1,056	1,403
Constant	6,543*	10,781*	4,901*	4,416*	7,865*	5,335*
R^2	.59	.54	.44	.62	.63	.61
Sample Size	4,687	1,497	3,188	2,195	1,046	2,548

*, †, or §: significant at 1%, 5%, or 10% respectively.

significance tests are F's.

Salaries of males who publish articles generally rise monotonically with articles produced. The obvious departure from this pattern occurs for biological sciences in the early stages of production. Only the last coefficient is significant, however. The configurations for book coefficients are considerably more disparate across fields. Liberal arts and physical sciences reveal continual increases; social sciences and math-engineering trace an inverted "V," the drop being associated with category >10. The reduced coefficient for math-engineering is insignificant. That for social sciences is significant and may reflect a tendency for the highest category to contain revised texts, readers, or other edited volumes not particularly valued by departments in that discipline. Unfortunately, the ACE data provides no information to check this hypothesis. The coefficients for biological sciences display a saw-toothed movement, but none are significant. Especially annoying are those for professions: faculty who write books receive lower salaries than their colleagues who do not. This result may point to a basic compositional heterogeneity within individual professions. Physicians, for example, may shun book writing yet command high salaries while the reverse might apply to educators. The curiosum is currently being explored.

From the article and book coefficients, a return per publication can be extracted. Those figures appear in Table 2. In computing average returns, the midpoint of each publication interval was used; midpoints for >50 and >10 were taken as 65 and 12 respectively. Except for the maverick biological sciences, articles evidence a tendency for diminishing returns, but the rate of decline for the first several articles differs strikingly among conformists. Liberal arts displays a slight undulation in the early stages. Average returns for books either decline continually or first rise then fall, professions excluded.

Table 2

RETURN PER PUBLICATION BY MALE FACULTY
IN EACH DISCIPLINE

	Soc Sci	Lib Art	Profess	Mat Eng	Bio Sci	Phy Sci
Articles						
1-2	$ 285	$ 212	$ 727	$ 693	$ 173	$ 864
3-4	161	223	286	395	- 50	425
5-10	135	163	283	208	7	198
11-20	113	154	203	179	67	119
21-50	74	97	149	123	56	89
>50	65	90	139	95	77	93
Books						
1-2	284	81	- 161	296	- 284	288
3-4	407	222	- 257	307	183	179
5-10	335	228	- 167	189	69	121
>10	166	185	- 141	- 37	58	89

Outstanding teaching appears to yield a low rate of return; in five of the six disciplines teaching excellence receives a smaller reward than does nominal publication of articles. Public service generally seems more lucrative than teaching, but 3-4 articles usually swamp that return. Current administrators enjoy large salary adjustments, earning at least $2,600 more than those free of such responsibilities. In each discipline the gain from current administration is at minimum three times that from teaching and public service combined. It is matched only by extensive article publication. Administrators do receive substantial compensation for the loss of national visibility which their job typically entails.

Experience evidences diminishing marginal returns for all disciplines, and this finding fits a popular mold. The severity of diminishing returns differs across fields, however, as does the point of negative returns. Figure 1 vividly illustrates these features. The individuals being compared are whites who completed their doctorates at age 30 (the mean for all 8 strata) and who are employed on a nine-month basis in an unranked western department. Publishers, outstanding teachers, public servants, and administrators are ruled out. Diminishing returns set in most gradually for liberal arts, and there negative returns do not materialize through 35 years of experience (age 65). Professors are also free of negative returns over the same range. For the other disciplines, negative returns surface between 30 and 35 years of experience.[9]

In conformity with casual empiricism, the Ph.D. always increases salary. This direct relationship is masked at times, but it readily emerges when the inter-

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[9] As scholars mature their list of accomplishments grows, and the resulting salary increments impart "steps" to the earnings-experience loci. This complication has been omitted from Figure 1 under ceteris paribus.

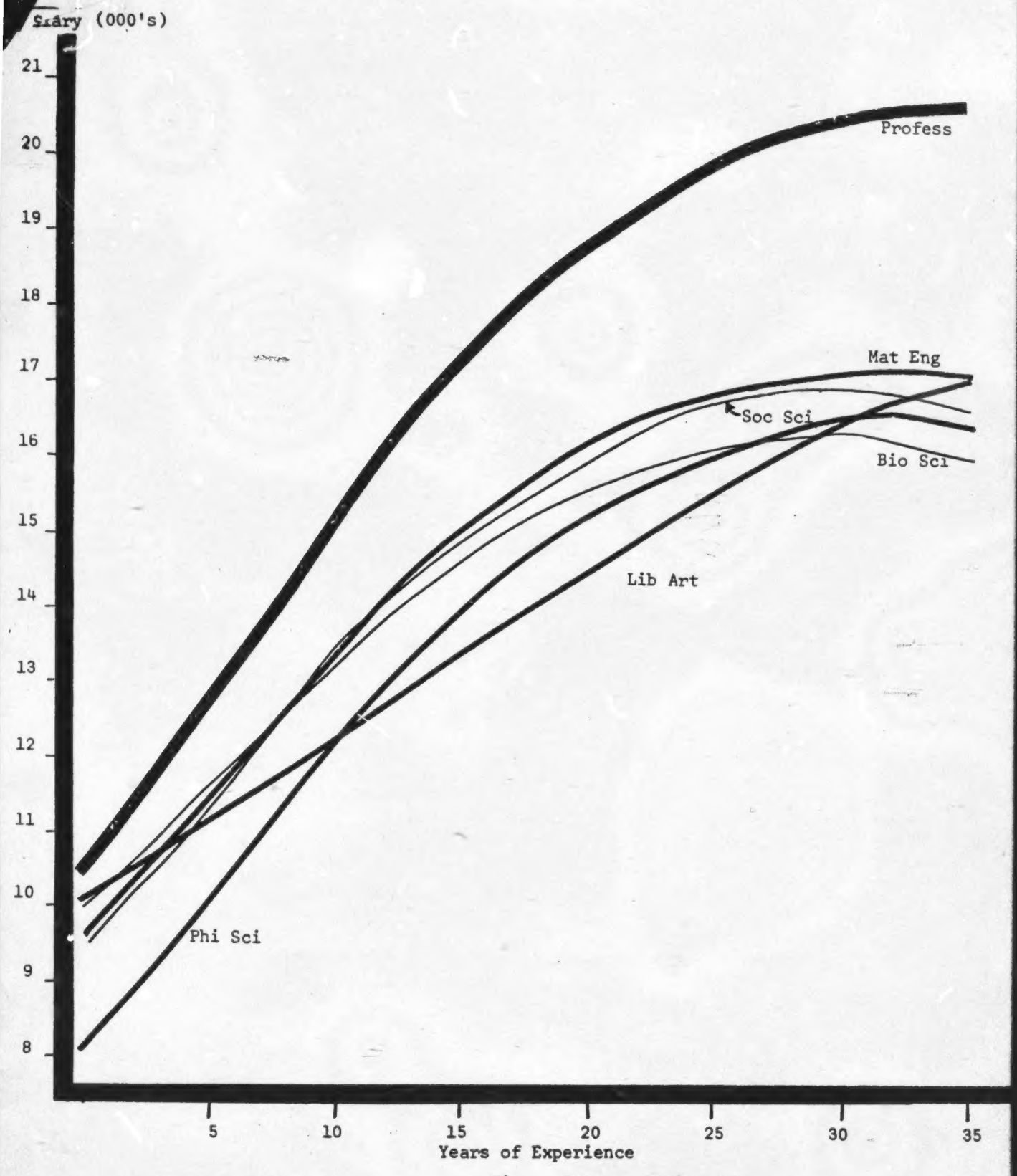

Figure 1

EXPERIENCE-EARNINGS PROFILE FOR MALE FACULTY BY DISCIPLINE

active component with Start is taken into account. For example, given a starting age of 30, the Ph.D. coefficients for liberal arts and biological sciences become $1,482 and $2,113 respectively. Black faculty are portrayed as earning more than whites, and this result is consistent in the regressions. Equally consistent, however, is the insignificance of the coefficients.[10]

Comparison of the male salary structure across disciplines reveals some obvious similarities along with some marked discrepancies. Attention now turns to the distaff side of the ACE data file.

IV. Contrapuntal Structures for Women and Men

The salary equations estimated for female social scientists and professionals are reported in Table 3. In both disciplines articles generate a monotonic salary improvement save in the extreme category for social sciences, where the coefficient is supported by a cell count of only 3. These patterns for articles bear a noticeable similarity to the respective conformations for men. The implied average returns, however, contrast with men's; they do not decline continually. Book coefficients mimic the movements established earlier, and the negative coefficient for social science reflects the predicament of 2 females. Current administrators are again handsomely rewarded though less than their male counterparts.

Experience affects salaries in the manner suggested by Johnson and Stafford (1974). The coefficient of experience, $\beta_1 + \beta_2 \cdot$ Start, is less positive for females than for males in both disciplines while that of the quadratic term is less negative for females in both. A catch-up phenomenon is implied; the salary differential, although increasing initially, increases at a decreasing rate until it begins to shrink. Given sufficient time, the differential would be driven to zero. Figure 2 shows the experience-earnings profiles for men and women in each field; the

[10] Experiments allowing the effect of race to permeate all regression coefficients could not be performed due to the small number of black respondents.

Table 3

ESTIMATED SALARY EQUATION AND RETURN PER PUBLICATION
FOR FEMALE FACULTY IN SELECT DISCIPLINES

	Social Sciences		Professions	
	Reg. Coe.	Ave. Ret.	Reg. Coe.	Ave. Ret.
Articles				
1-2	$ 212	$ 141	$ 18	$ 12
3-4	728	208	2,601*	743
5-10	877§	117	2,008*	368
11-20	1,158†	75	4,881*	315
21-50	2,434*	69	7,001*	197
>50	200	3	10,113*	156
Books				
1-2	355	237	-1,076	- 717
3-4	1,323*	378	-1,007	- 288
5-10	2,048*	273	-1,216	- 162
>10	- 130	- 11	-3,283	- 274
Teaching Award	418		- 559	
Public Service	722*		- 84	
Administration				
Current	1,530*		2,121*	
Previous	1,956*		262	
Experience	446*		306§	
Experience Squared	- 7*		- 5	
Ph.D.	4,427*		47	
Start	94§		- 19	
Start x Experience	- 2		- 2	
Start x Ph.D.	-65		27	
Quality of Department				
3.1-4.0	455		-6,081	
4.1-5.0	382		-2,771	
Region of Department				
North	1,443*		1,754†	
Great Lakes	1,076*		2,389*	
Southeast	1,609*		529	
Eleven-Month Salary	2,168*		3,566*	
Black Faculty	1,987§		5,790*	
Constant	3,546§		10,241*	
R^2	.58		.28	
Sample Size	371		547	

*, †, or § designate significance at the 1%, 5%, or 10% level respectively.

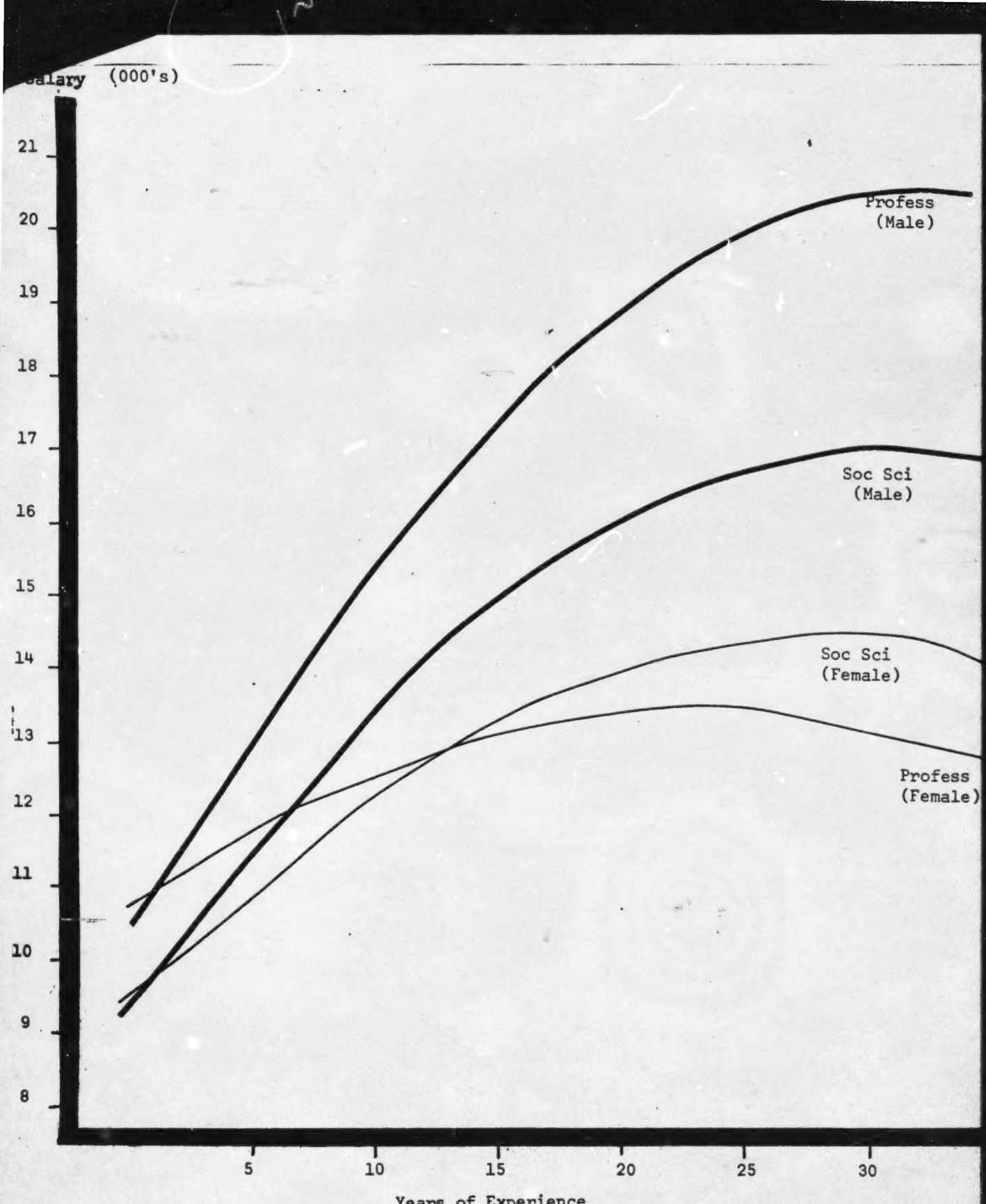

Figure 2

EXPERIENCE-EARNINGS PROFILES FOR COMPARABLE MALE AND FEMALE FACULTY

same conditions underlying the previous figure apply. It is clear that once the parity point is passed after graduation the salary disparity widens through 35 years of experience. The catch-up process begins at 44 years of experience for social sciences and at 39 years for professions-- at age 74 and 69 respectively. Catching up is complete, with the salary differential totally eliminated, at experience levels of 87 and 76 years-- 117 and 106 years of age. This somewhat amusing mental exercise demonstrates that experience which does not develop specific skills provides females with little hope for salary equality. A corollary statement is that for women to attain parity their vitae must be longer. More of this anon.

The theme of salary differentials between sexes is pursued further in Table 4. There the coefficients from Tables 1 and 3 are manipulated to yield salaries for males and females who possess like skills. Underlying this experiment are givens identical to those for Figure 2 with an amended starting age of 31 and an added stipulation of 13 years experience, the means for the four relevant data groups. The resulting salary figures may fall short of today's standard because they have not been adjusted for the inflation which followed 1972-73. For all skill combinations listed, females earn less than males. Even the skill package most favorable to females from all possible packages leads to a lower salary.

Women earn less than comparable men. The next question is obvious: How many extra credentials are necessary for women faculty to reach salary parity? One way to handle this question is to bestow various combinations of skills on a female and to compare her consequent salary with that for a male having given skills The number of possible combinations, however, is quite large, and because of the dichotomous nature of the skill variables exact parity would be difficult to

Table 4

SALARY COMPARISONS FOR MALE AND FEMALE FACULTY WITH LIKE SKILLS

Skill Package	Social Sciences			Professions		
	Female Salary	Male Salary	Salary Relative *	Female Salary	Male Salary	Salary Relative*
No Skills	$12,923	$14,391	.898	$12,875	$16,575	.777
3-4 Articles	13,651	14,953	.913	15,476	17,575	.881
11-20 Articles	14,091	16,149	.873	17,756	19,727	.900
Outstanding Teaching	13,341	14,667	.910	12,317	16,651	.740
Public Service	13,645	15,034	.908	12,791	16,979	.753
Cur. Administration	14,453	17,794	.812	14,996	19,680	.762
11-20 Articles, 5-10 Books	16,135	18,664	.864	16,540	18,478	.895†
11-20 Articles, Cur. Administration	15,621	19,552	.799	19,877	22,832	.871
21-50 Articles, 3-4 Books, Cur. Administration	18,210	21,839	.834	20,990	24,058	.872
3-4 Articles, Outstanding Teaching, Public Service	14,791	15,872	.932†	14,834	18,055	.822

* Female salary/male salary.

† Minimum salary difference from all possible skill packages.

construct. An alternative tack is to derive from the discrete variables a skill measure which is continuous and to use that measure in locating parity. This is done in Table 5, which is premised on the same conditions as Table 4. The total return columns present the total extra salary resulting from article publication. These figures were computed by linearly interpolating the article coefficients in Tables 1 and 3 over the midpoints of the publication intervals. The FEAR (Female ExtrA cRedentials) ratio is simply the female's salary inclusive of the return to articles divided by the salary of an unskilled male, the latter being $14,391 or $16,575. Thus a female social scientist who publishes 8 articles and has no other credits earns $12,923 + $895 = $13,770, which is 96 percent of an unskilled male's salary. The social scientist achieves parity with 20 articles; the professional, with 11. Put in these terms, the salary disparity is appreciable.

The final regression result considered is the coefficient for black female faculty: it is large and significant in both cases. The repetition of a positive coefficient in Tables 1 and 3 punctuated with significance should weaken even the staunchest purist into at least a tentative conclusion about affirmative action. From the "no skills" salaries in Table 4, it is easy to show that black males and black females earn more than white males, who in turn earn more than white females. White women, not blacks, may be the disadvantaged. It must be cautioned, however, that the small percentage of blacks in the data (<1%) may render the results atypical. As Tuckman (1976) reveals, the less prestigious black universities <u>are</u> underrepresented in the sample.

V. Concluding Comments

The structure of faculty salaries differs by discipline and sex. These differences are fundamental, and they cannot be captured by the mere insertion of intercept dummies into the estimating equation. This finding, which encompasses

Table 5

SCHEDULE OF EXTRA CREDENTIALS FOR FEMALE FACULTY

Number of Articles	Social Sciences		Professions	
	Total Return	FEAR Ratio	Total Return	FEAR Ratio
5	$ 784	.952	$ 2,716	.941
6	821	.955	2,793	.945
7	858	.958	2,870	.950
8	895	.960	3,031	.960
9	932	.963	3,278	.975
10	968	.965	3,525	.989
11	1,004	.968	3,771	1.004
12	1,041	.970	4,018	1.019
13	1,077	.973	4,264	1.034
14	1,113	.975	4,511	1.049
15	1,150	.978	4,758	1.064
16	1,200	.981	4,934	1.074
17	1,263	.986	5,040	1.081
18	1,326	.990	5,146	1.087
19	1,390	.995	5,252	1.094
20	1,453	.999	5,358	1.100
21	1,516	1.003	5,464	1.106
22	1,579	1.008	5,570	1.113
23	1,643	1.012	5,676	1.119
24	1,706	1.017	5,782	1.126
25	1,769	1.021	5,888	1.132

a large segment of the academic community, raises doubt about the appropriateness of the basic assumptions underlying Katz's (1973) work on faculty salaries. Of the skills examined here, teaching and public service yield low compensation; publishing and administration carry much larger returns.

Women earn less than men with like characteristics, and this disparity, measured in terms of the extra credentials needed for salary equivalence, appears substantial. Strict inferences about sexual discrimination drawn from this conclusion, however, must be accompanied by a key proviso of equal or smaller female supplies. The limited evidence on this point contained in the ACE data file is inconclusive. One is nevertheless tempted to ask why separate markets exist for men and women if not because of discrimination.

The salary catch-up phenomenon of Johnson and Stafford (1974) is detected by the regressions, but the opportunity provided for women to achieve salary equality is vacuous. It must be recognized, of course, that the role of experience in the present skills context differs from that assigned by Johnson and Stafford. In their study experience essentially subsumes the skill variables broken out here for special consideration. With the rewards to specific female skills now articulated, women can assume a more active role in the pursuit of salary parity than Johnson and Stafford concede. They at least have a clue about which direction to steer their academic careers to hasten the diminution of salary differentials.

According to a fundamental principle of freshman economics, a rational individual strives to maximize the abstraction utility. This paper, by illuminating some of the parameters in the academician's budget constraint, may permit the attainment of higher utility levels. The salary perspective which it defines should enable savants to ascertain the market value of their skills and to judge for themselves the equity of their return in the salary structure currently extant

at their universities. That same perspective can also provide useful criteria for future salary negotiations either by faculty individually or by their representatives.

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